CLAIMS

1. (Currently amended) A radio access network comprising:

a base station controller;

a plurality of radio base stations ~~station~~ connected to the base station controller in a daisy chain configuration via a shared communication link, wherein the base station controller and each radio base station comprises a node in a chain;

at least one node in the chain including a first priority queue for scheduling packets to be transmitted via the shared communication link to an adjacent node in the chain; and

wherein the first priority queue schedules packets for transmission over the shared communication link based on a location of a terminating node for each packet.

2. (Original) The radio access network of claim 1 wherein the first priority queue is disposed at an output of the at least one node.

3. (Original) The radio access network of claim 2 further including a second priority queue disposed at an input of the at least one node.

4. (Original) The radio access network of claim 1 wherein the first priority queue is disposed at an input of the at least one node.

5. (Original) The radio access network of claim 1 wherein the shared communication link is a forward communication link for transmitting packets from the base station controller to the radio base stations.

6. (Original) The radio access network of claim 5 wherein the first priority queue is located at an output of the base station controller.

7. (Original) The radio access network of claim 5 wherein a first priority queue is located at an output of at least one radio base station.

8. (Original) The radio access network of claim 7 wherein a second priority queue is located at an input of each radio base station.

9. (Original) The radio access network of claim 1 wherein the shared communication link is a reverse communication link for transmitting packets from the radio base stations to the base station controller.

10. (Original) The radio access network of claim 9 wherein the first priority queue is located at an output of each radio base station connected to the shared communication link.

11. (Original) The radio access network of claim 10 wherein a second priority queue is located at an input of the each radio base station connected to the shared communication link except the last radio base station.

12. (Original) The radio access network of claim 11 wherein a first priority queue is located at the input of the base station controller.

13. (Currently amended) The radio access network of claim 1 wherein the priority queue comprises:

a plurality of sub-queues corresponding to different priority levels;

a classifier to determine the priority level of the packets to be transmitted to the adjacent node and to route the packets to one of the ~~sub-queries~~ sub-queues based on the priority levels of the packets; and

a scheduler to fetch the packets from the sub-queues for transmission according to their priority level.

14. (Original) The radio access network of claim 13 wherein the scheduler fetches packets for transmission from the highest priority level sub-queue having packets to be transmitted.

15. (Original) The radio access network of claim 14 wherein the classifier determines the priority levels of the packets to be transmitted from information contained in packet headers of the packets to be transmitted.

16. (Original) The radio access network of claim 15 wherein the packets are IP packets and wherein the packet headers of the IP packets contain priority data.

17. (Original) The radio access network of claim 15 wherein the packets are ATM packets and wherein the packet headers of the ATM packets contain circuit identifiers used by the classifier to determine the priority levels of packets to be transmitted.

18. (Original) The radio access network of claim 17 further comprising a database storing priority data used by the classifier to determine the priority levels of packets to be transmitted.

19. (Original) The radio access network of claim 18 wherein the database stores a lookup table associating the circuit identifiers extracted from the headers of the ATM packets to corresponding priority levels for the packets to be transmitted.

20. (Original) The radio access network of claim 13 wherein the first priority queue drops packets from the sub-queues after a predetermined period of time has elapsed from the time the packets were placed in the sub-queues.

21. (Original) The radio access network of claim 13 wherein the first priority queue promotes packets for immediate transmission after a predetermined period of time has elapsed.

22. (Original) The radio access network of claim 13 wherein scheduler fetches packets from the sub-queues so as to maintain a minimum throughput rate for each sub-queue.

23. (Original) A radio base station for a radio access network, said radio base station comprising one node in a series of connected nodes on a shared communication link, said radio base station comprising:

an input for receiving packets;

a first priority queue for scheduling packets to be transmitted via the shared communication link to an adjacent node; and

wherein the first priority queue schedules the packets for transmission over the shared communication link based on a location of the terminating node for each packet.

24. (Original) The radio base station of claim 23 wherein the first priority queue is disposed at an output of the radio base station.

25. (Original) The radio base station of claim 24 further including a second priority queue disposed at an input of the at least one radio base station.

26. (Original) The radio base station of claim 23 wherein the first priority queue is disposed at the input to the radio base station.

27. (Original) The radio base station of claim 23 wherein the first priority queue comprises:

a plurality of sub-queues corresponding to different priority levels;

a classifier to determine the priority level of the packets and to route the packets to one of the sub-queues based on the priority levels of the packets; and

a scheduler to fetch the packets from the sub-queues for transmission according to their priority level.

28. (Original) The radio base station of claim 27 wherein the scheduler fetches the packets for transmission from the highest priority sub-queue having packets to be transmitted.

29. (Original) The radio base station of claim 28 wherein the classifier determines the priority levels of the packets to be transmitted from information contained in packet headers of the packets to be transmitted.

30. (Original) The radio base station of claim 29 wherein the packets are IP packets and wherein the packet headers of the IP packets contain priority data.

31. (Original) The radio base station of claim 30 wherein the packets are ATM packets and wherein the packet headers of the ATM packets contains a circuit identifier used by the classifier to determine the priority levels of packets to be transmitted.

32. (Original) The radio base station of claim 31 further comprising a database storing priority data used by the classifier to determine the priority levels of packets to be transmitted.

33. (Original) The radio base station of claim 32 wherein the database stores a lookup table associating the circuit identifiers extracted from the packet headers of the ATM packets to corresponding priority levels for the packets to be transmitted.

34. (Original) The radio base station of claim 27 wherein the first priority queue drops packets from the sub-queues after a predetermined period of time has elapsed from the time the packets were placed in the sub-queue.

35. (Original) The radio base station of claim 27 wherein the first priority queue promotes packets for immediate transmission after a predetermined period of time has elapsed.

36. (Original) The radio base station of claim 27 wherein scheduler fetches packets from the sub-queues so as to maintain a minimum throughput rate for each sub-queue.

37. (Original) A method implemented in a radio access network comprising a plurality of radio base stations connected in a daisy chain configuration with a base station controller, said method comprising:

receiving packets at a radio base station in a chain of radio base stations to be transmitted to other radio base stations in the chain of radio base stations;

determining the location of the terminating radio base station in said chain of radio base stations for each of the packets to be transmitted

determining a priority level of the packets based on the location of the terminating radio base stations for the packets;

scheduling the packets for transmission according to the priority levels of the packets.

38. (Original) The method of claim 37 wherein determining a priority level of the packets based on the location of the terminating radio base stations for the packets comprises determining the priority levels of the packets based on information contained in packet headers.

39. (Original) The method of claim 37 wherein the packets are IP packets and wherein the packet headers of the IP packets contain priority data.

40. (Original) The method of claim 37 wherein the packets are ATM packets and wherein the packet headers of the ATM packets contain a circuit identifier used to determine the priority level of packets to be transmitted.

41. (Original) The method of claim 40 further comprising storing priority data in a priority database used to determine the priority level of packets to be transmitted.

42. (Original) The method of claim 41 wherein the priority database stores a lookup table associating the circuit identifiers extracted from the packet headers of the ATM packets to corresponding priority levels for the packets to be transmitted.

43. (Original) The method of claim 37 wherein scheduling the packets for transmission according to the priority levels of the packets comprises:

classifying packets into two or more priority levels;

providing a sub-queue for each priority level; and

routing packets to appropriate sub-queues based on the priority level of the packet.

44. (Original) The method of claim 43 wherein scheduling the packets for transmission according to the priority levels of the packets further comprises fetching packets from the sub-queues in an order dependent on the priority level of the packets.

45. (Original) The method of claim 44 wherein fetching packets from the sub-queues in an order dependent on the priority level of the packets comprises fetching packets one at a time from the highest priority sub-queue containing packets to be transmitted.

46. (Original) The method of claim 37 further comprising dropping packets after a predetermined period of time has elapsed.

47. (Original) The method of claim 37 further comprising promoting packets for immediate transmission after a predetermined period of time has elapsed.

48. (Original) The method of claim 37 further setting a minimum throughput rate for each priority level, and scheduling packets for transmission so as to maintain the throughput rate for each priority level above the corresponding minimum throughput rate.